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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/553,654

Applicant(s)

PHAM ET AL.

Examiner

BRITTANY M. MARTINEZ

Art Unit

1793

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 14 October 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☒ Claim(s) 1, 3-4, 8, 10-11 and 18-19 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 14 October 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
- 4) ☐ Interview Summary (PTO-413)
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____
- Paper No(s)/Mail Date 8/4/2006.

DETAILED ACTION

Citation to the Specification will be in the following format (S. p. #, P) where # denotes the page number and P is the paragraph number. Citation to U. S. Patent literature will be in the format (Inventor, c. #, I. LL) where # is the column number and LL is the line number. Foreign patent literature will be in the format (Inventor, P) where P denotes the paragraph number.

Status of Application

Claims 1-20 are pending and have been examined in the instant application.

Priority

1. The instant application is a national stage entry of PCT/FR04/00929, filed April 15, 2004, which claims foreign priority in regard to French Application No. 03/04749, filed April 16, 2003. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.
2. Should Applicant desire to obtain the benefit of foreign priority under 35 U.S.C. 119(a)-(d) prior to declaration of an interference, a certified English translation of the foreign application must be submitted in reply to this action. 37 CFR 41.154(b) and 41.202(e).

Failure to provide a certified translation may result in no benefit being accorded for the non-English application.

Claim Objections

3. **Claims 1, 3-4, 8, 10-11 and 18-19** are objected to because of the following informalities: In **Claim 1**, line 5, the "and wherein" following "carbonated resin," should be deleted; **Claim 1**, line 5, "contains" should be deleted and replaced with "containing;" **Claim 1**, line 5, the "and wherein" following "inclusions," should be deleted; **Claim 1**, line 6, "comprises" should be deleted and replaced with "comprising;" **Claim 3**, line 1, "wherein" should be deleted; **Claim 3**, line 2, "comprise" should be deleted and replaced with "comprising;" **Claim 4**, line 1, "wherein" should be deleted; **Claim 4**, line 2, "comprise" should be deleted and replaced with "comprising;" **Claim 8**, line 1, "wherein" should be deleted; **Claim 8**, line 2, "comprise" should be deleted and replaced with "comprising;" **Claim 10**, line 1, "wherein" should be deleted; **Claim 10**, line 2, "comprise" should be deleted and replaced with "comprising;" **Claim 11**, line 1, "wherein" should be deleted; **Claim 11**, line 2, "comprise" should be deleted and replaced with "comprising;" **Claim 18**, line 4, the "wherein" following "precursor and" should be deleted; **Claim 18**, line 4, "comprises" should be deleted and replaced with "comprising;" **Claim 18**, line 4, the "wherein" following "further" should be deleted; **Claim 18**, line 5, "comprises" should be deleted and replaced with "comprising;" **Claim 19**, line 1, "wherein" should be deleted; and **Claim 19**, line 1, "comprise" should be deleted and replaced with "comprising." Appropriate correction is required.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. **Claims 1, 3, 10 and 18-19** are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicant regards as the invention.
6. **Claim 1** recites the limitation "thereof" in the last line of the claim. There is insufficient antecedent basis for this limitation in the claim.
7. With regard to **Claims 3, 10 and 19**, the portion of the claims that reads "at least one of...and/or" is improper Markush/alternative format. See MPEP § 2173.05(h).
8. **Claim 18** recites the limitation "thereof" in the 5th line of the claim. There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 103

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

11. **Claims 1-2, 4, 6, 8, and 15** are rejected under 35 U.S.C. 103(a) as being unpatentable over *Wilhelmi* (DE 4420294).

12. With regard to **Claims 1-2, 4, 8, and 15**, *Wilhelmi* discloses a SiC-based composite product, said product capable of use as an inner coating for an internal lining of an incinerator (*Wilhelmi*, "Abstract").

13. With regard to **Claim 6**, *Wilhelmi* discloses said material in the form of bricks (*Wilhelmi*, "Abstract").

14. *Wilhelmi* does not explicitly disclose said composite material prepared from a precursor mixture comprising at least one β -SiC precursor and at least one carbonated resin (**Claim 1**); said composite material containing inclusions, at least a part of which comprising α -SiC in a β -SiC matrix (**Claim 1**); an aluminum smelting furnace or a fused salt electrolytic cell (**Claims 1 and 15**); the weight fraction of said inclusions being from 80 to 95% of the total weight of the precursor mixture (**Claim 2**); at least 50% by weight of said inclusions being α -SiC (**Claim 4**); nor at least 70% by weight of said inclusions being α -SiC (**Claim 8**).

15. With regard to **Claims 1-2, 4, 8, and 15**, the process for producing the composition is held to be obvious, when the reference teaches a product that appears to be the same as, or an obvious variant of, the product set forth in a product-by-process claim although produced by a different process See *In re Marosi*, 710 F.2d 799, 218 USPQ 289 (Fed. Cir. 1983), and *In re Thorpe*, 777 F.2d 695, 227 USPQ 964 (Fed. Cir.1985). See also MPEP 2113.

16. With regard to the inclusions of **Claim 1**, it is well-known in the art that β -SiC and α -SiC are the most common SiC phases, and thus, the selection of α -SiC or β -SiC as components in a material for an inner coating of an incinerator is not inventive since the use of SiC as an inner coating of an incinerator is taught broadly by Wilhelmi.

17. With regard to **Claims 1 and 15**, it is well-known in the art that an aluminum smelting furnace is a type of incinerator, and thus, an aluminum smelting furnace is an obvious variant of an incinerator.

18. With regard to **Claims 2, 4 and 8**, an expected component amount is a result effective variable since one of ordinary skill in the art would expect different properties in the product as such amount varies. Since the component amount is a result effective variable, it is within the ordinary skill of one of ordinary skill in the art to develop a suitable weight percentage of the various inclusions in the precursor mixture. *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

19. **Claims 1-2, 4, 6, 8 and 16-17** are rejected under 35 U.S.C. 103(a) as being unpatentable over Cortellini (US 5,876,584).

20. With regard to **Claims 1, 6 and 16-17**, Cortellini discloses a SiC-based composite product, said product being in the form of panels suitable as an inner lining of a molten salt electrolysis cell (Cortellini, "Abstract;" Claims 1 and 6-8).

21. With regard to **Claims 1, 7 and 16-17**, Cortellini discloses an electrolysis cell for producing aluminum from a mixture of alumina and cryolite comprising a SiC composite product (Cortellini, "Abstract;" Claims 1 and 6-8).

22. Cortellini does not explicitly disclose said composite material prepared from a precursor mixture comprising at least one β -SiC precursor and at least one carbonated resin (**Claim 1**); said composite material containing inclusions, at least a part of which comprising α -SiC in a β -SiC matrix (**Claim 1**); the weight fraction of said inclusions being from 80 to 95% of the total weight of the precursor mixture (**Claim 2**); at least 50% by weight of said inclusions being α -SiC (**Claim 4**); nor at least 70% by weight of said inclusions being α -SiC (**Claim 8**).

23. With regard to **Claims 1-2, 4, 8 and 16-17**, the process for producing the composition is held to be obvious, when the reference teaches a product that appears to be the same as, or an obvious variant of, the product set forth in a product-by-process claim although produced by a different process See *In re Marosi*, 710 F.2d 799, 218 USPQ 289 (Fed. Cir. 1983), and *In re Thorpe*, 777 F.2d 695, 227 USPQ 964 (Fed. Cir.1985). See also MPEP 2113.

24. With regard to the inclusions of **Claim 1**, it is well-known in the art that β -SiC and α -SiC are the most common SiC phases, and thus, the selection of α -SiC or β -SiC as components in a material for an inner coating of an incinerator is not inventive since the use of SiC as an inner coating of an incinerator is taught broadly by Cortellini.

25. With regard to **Claims 2, 4 and 8**, an expected component amount is a result effective variable since one of ordinary skill in the art would expect different properties in the product as such amount varies. Since the component amount is a result effective variable, it is within the ordinary skill of one of ordinary skill in the art to develop a

suitable weight percentage of the various inclusions in the precursor mixture. *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

26. **Claims 1-14 and 16-20** are rejected under 35 U.S.C. 103(a) as being unpatentable over Gadkaree et al. (US 6,555,031 B2) in view of Cortellini (US 5,876,584).

27. With regard to **Claims 1 and 18**, Gadkaree discloses a method for producing a composite based on cubic SiC comprising: preparing a precursor mixture comprising at least one β -SiC precursor and at least one thermosetting carbon-containing resin, said composite material comprising inclusions, at least portion of which comprising α -SiC in a β -SiC matrix; and forming a composite material (Gadkaree, c. 3, l. 60-67; c. 4, l. 1 and 8-17; c. 6, l. 60-67; c. 7, l. 1-67; c. 8, l. 1 and 5-15; Examples; Claims 1-4 and 12-13).

28. With regard to **Claims 3, 10 and 19**, Gadkaree discloses at least a part of said inclusions comprising Si_3N_4 (Gadkaree, "Example 5").

29. Gadkaree does not explicitly disclose the SiC-based composite material capable of use as an inner coating for aluminum smelting furnace or as an inner coating for a fused salt electrolytic cell (**Claims 1 and 16-18**); said material being in the form of bricks or panels (**Claims 6, 13 and 14**); the weight fraction of said inclusions being from 80 to 95% of the total weight of the precursor blend (**Claim 2**); at least 50% by weight of said inclusions being α -SiC (**Claims 4 and 11**); said material having a density of at least 2.4 g/cm³ (**Claims 5 and 12**); the composite being capable of use as a lining for an electrolytic cell for producing aluminum from a mixture of alumina and cryolite

comprising a SiC composite product (**Claim 7**); at least 70% by weight of said inclusions being α -SiC (**Claim 8**); said density being from 2.45 to 2.75 g/cm³ (**Claim 9**); nor a coating (**Claim 20**).

30. With regard to **Claims 1, 6, 13-14, 16-18, and 20**, Cortellini discloses a SiC composite product, said product being in the form of panels suitable as an internal lining of a molten salt electrolysis cell (Cortellini, "Abstract;" Claims 1 and 6-8).

31. With regard to **Claim 7**, Cortellini discloses a cell for producing aluminum from a mixture of alumina and cryolite comprising a SiC composite product (Cortellini, "Abstract;" Claims 1 and 6-8).

32. With regard to **Claims 18 and 20**, Cortellini further discloses a coating (Cortellini, "Abstract;" Claims 1 and 6-8).

33. With regard to **Claims 2, 4, 8 and 11**, an expected component amount is a result effective variable since one of ordinary skill in the art would expect different properties in the product as such amount varies. Since the component amount is a result effective variable, it is within the ordinary skill of one of ordinary skill in the art to develop a suitable weight percentage of the various inclusions in the precursor blend. In re Boesch, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

34. With regard to **Claims 5, 9 and 12**, one of ordinary skill in the art would highly expect the material of Gadkaree to have a density as claimed in the instant application since Gadkaree discloses substantially the same production process as that of the instant application. Further, an expected density is a result effective variable since one of ordinary skill in the art would expect different properties in the product as such

parameter varies. Since the density is a result effective variable, it is within the ordinary skill of one of ordinary skill in the art to develop a suitable material density. *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

35. Thus, it would have been obvious to one of ordinary skill in the art to try to modify the product of Gadkaree with the potential uses of Cortellini because one of ordinary skill in the art could have pursued the known potential use options within his or her technical grasp with a reasonable expectation of success.

36. **Claims 1-6, 8-15 and 18-20** are rejected under 35 U.S.C. 103(a) as being unpatentable over Gadkaree et al. (US 6,555,031 B2) in view of Wilhelmi (DE 4420294).

37. With regard to **Claims 1 and 18**, Gadkaree discloses a method for producing a composite based on cubic SiC comprising: preparing a precursor mixture comprising at least one β -SiC precursor and at least one thermosetting carbon-containing resin, said composite material comprising inclusions, at least portion of which comprising α -SiC in a β -SiC matrix; and forming a composite material (Gadkaree, c. 3, l. 60-67; c. 4, l. 1 and 8-17; c. 6, l. 60-67; c. 7, l. 1-67; c. 8, l. 1 and 5-15; Examples; Claims 1-4 and 12-13).

38. With regard to **Claims 3, 10 and 19**, Gadkaree discloses at least a part of said inclusions comprising Si_3N_4 (Gadkaree, "Example 5").

39. Gadkaree does not explicitly disclose the SiC-based composite material capable of use as an inner coating for aluminum smelting furnace or as an inner coating for a fused salt electrolytic cell (**Claims 1 and 18**); said material being in the form of bricks or panels (**Claims 6, 13 and 14**); the weight fraction of said inclusions being from 80 to

95% of the total weight of the precursor blend (**Claim 2**); at least 50% by weight of said inclusions being α -SiC (**Claims 4 and 11**); said material having a density of at least 2.4 g/cm³ (**Claims 5 and 12**); at least 70% by weight of said inclusions being α -SiC (**Claim 8**); said density being from 2.45 to 2.75 g/cm³ (**Claim 9**); nor a coating (**Claim 20**).

40. With regard to **Claims 1-2, 4, 8, 15, 18 and 20**, Wilhelmi discloses a SiC-based composite product, said product capable of use as an inner coating for an internal lining of an incinerator (Wilhelmi, "Abstract"). Further, with regard to **Claims 1 and 15**, it is well-known in the art that an aluminum smelting furnace is a type of incinerator, and thus, an aluminum smelting furnace is an obvious variant of an incinerator.

41. With regard to **Claim 6 and 13-14**, Wilhelmi discloses said material in the form of bricks (Wilhelmi, "Abstract").

42. With regard to **Claims 2, 4, 8 and 11**, an expected component amount is a result effective variable since one of ordinary skill in the art would expect different properties in the product as such amount varies. Since the component amount is a result effective variable, it is within the ordinary skill of one of ordinary skill in the art to develop a suitable weight percentage of the various inclusions in the precursor blend. In re Boesch, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

43. With regard to **Claims 5, 9 and 12**, one of ordinary skill in the art would highly expect the material of Gadkaree to have a density as claimed in the instant application since Gadkaree discloses substantially the same production process as that of the instant application. Further, an expected density is a result effective variable since one of ordinary skill in the art would expect different properties in the product as such

parameter varies. Since the density is a result effective variable, it is within the ordinary skill of one of ordinary skill in the art to develop a suitable material density. In re Boesch, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

44. Thus, it would have been obvious to one of ordinary skill in the art to try to modify the product of Gadkaree with the potential uses of Wilhelmi because one of ordinary skill in the art could have pursued the known potential use options within his or her technical grasp with a reasonable expectation of success.

Double Patenting

45. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

46. **Claims 1-4, 6-8, 10-11 and 13-20** are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over Claims 1-2, 8-10 and 14-20 of copending Application No. 11/569103. Although the conflicting

claims are not identical, they are not patentably distinct from each other because Application No. 11/569103 discloses a SiC-based composite material as an internal lining of an incinerator, substantially as in the instant application.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Conclusion

1. No claim is allowed.
2. In general, prior art renders the claimed invention anticipated and obvious.
3. Applicant is required to provide pinpoint citation to the specification (i.e. page and paragraph number) to support any amendments to the claims in all subsequent communication with the examiner. **No new matter will be allowed.**

Any inquiry concerning this communication or earlier communications from the examiner should be directed to BRITTANY M. MARTINEZ whose telephone number is (571) 270-3586. The examiner can normally be reached Monday-Friday 9:00AM-5:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stanley Silverman can be reached at (571) 272-1358. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Wayne Langel/
Primary Examiner, Art Unit 1793

BMM

/Brittany M Martinez/
Examiner, Art Unit 1793